SAMPLE	**TUE-4-1**
baseline solution	BMS
	[10 mM MES pH 7.0 in 0.15 M (8.85 g/L) NaCl + 0.025 M (~2.5 g/L) CaCl2]
Date	20-Sep-04

Biosensor	30		
pH optode	77		
Hardware	Model 1	with PMT at	600 V

total volume 4850 uL
always removed same volume as was to be injected

Data from measurement of sample and stand s:

vol (uL)	soln	co ppb)	biosensor ΔV_{obs}	pH optode ΔV
100	GW	??	0.107	0.022
100	DCA standard	100	0.312	0.026
50	DCA standard	100	0.157	0.013
25	DCA standard	100	0.086	0.007

Data for correlation of pH response:
(performed in same baseline solution as above)

use correlation for biosensor 30 and pH optode 77 on separate worksheet

so ΔVpH (bio30) = ΔVpH (pH77) * 3.58

so ΔVpH experienced by biosensor is:

vol (uL)	soln	conc (ppb)	biosensor ΔV_{pH}
100	GW	??	0.079
100	DCA standard	100	0.093
50	DCA standard	100	0.047
25	DCA standard	100	0.025

then, since:
$\Delta V_{obs} = \Delta V_{pH} + \Delta V_{DCA}$
can calculate ΔV_{DCA} (biosensor response due to DCA only):

vol (uL)	soln	conc (ppb)	biosensor ΔV_{DCA}
100	GW	??	0.028
100	DCA standard	100	0.219
50	DCA standard	100	0.110
25	DCA standard	100	0.061

Report Documentation Page

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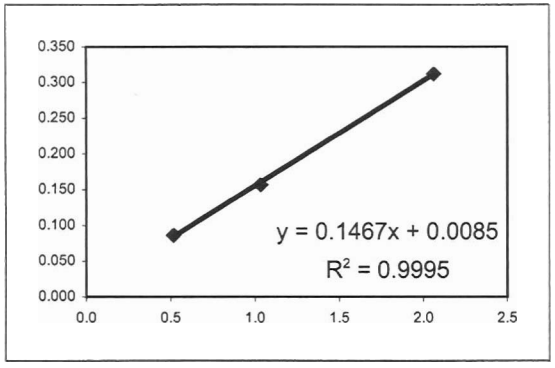
Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std Z39-18

Calculation with no corrections:

0

vol (uL)	soln	conc (ppb)	Δ conc (ppb)	biosensor ΔVobs
100	GW	??		0.107
100	DCA standard	100	2.1	0.312
50	DCA standard	100	1.0	0.157
25	DCA standard	100	0.5	0.086



GW ΔC = 0.7

GW DCA = 32.6

Calculation including mass removed effects only:

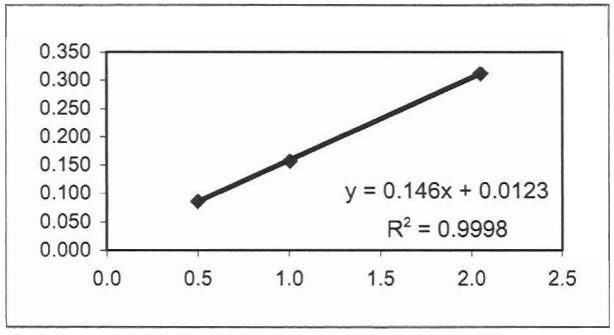
Initial concentration in baseline solution is:

0 ppb

Then starting conc in vial is: 0 ppb

Guess GW conc 32 ppb

vol (uL)	soln	conc (ppb)	conc after spike	Δ conc (ppb)	biosensor ΔVobs
100	GW	??	0.7	0.7	0.107
100	DCA standard	100	2.7	2.0	0.312
50	DCA standard	100	3.7	1.0	0.157
25	DCA standard	100	4.2	0.5	0.086



0.6

31.5

Calculation including volume & pH effects:

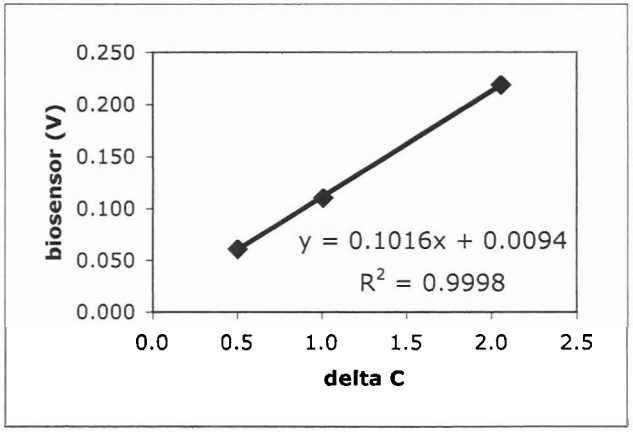
Initial concentration in baseline solution is:

0 ppb

Then starting conc in vial is: 0 ppb

Guess GW conc 9 ppb

vol (uL)	soln	conc (ppb)	conc after spike	Δ conc (ppb)	biosensor ΔV_{DCA}
100	GW	??	0.2	0.2	0.028
100	DCA standard	100	2.2	2.1	0.219
50	DCA standard	100	3.3	1.0	0.110
25	DCA standard	100	3.8	0.5	0.061



GW ΔC = 0.2

GW DCA = 9.0